

# **Laser Bar code Scanner**

**MBS7300**

## **Decoder & Scanner**

## **Programming Manual**

# Laser Bar code Scanner Specification

|                         |   |   |  |
|-------------------------|---|---|--|
| <b>Performance</b>      | <b>Category</b>   |   | <b>Laser Bar cod Scanner</b>   |
|                         | <b>Light source</b>                                       |   | <b>650nm-670nm Laser</b>   |
|                         | <b>Accuracy</b>   |   | <b>0.10mm(4mil) PCS0.9</b>   |
|                         | <b>Safety</b>   |   | <b>National Laser Standard Level II</b>  |
|                         | <b>Depth of field<br/>Depends on bar code resolution</b>  |   | <b>2.5-600(mm)</b>   |
|                         | <b>Scanning angle</b>                                     |   | <b>Obliquity 45 degrees,Elevation 60 degrees.</b>  |
|                         | <b>Scan Type</b>  |   | <b>Double Single line Scanner</b>  |
|                         | <b>PCS</b>  |   | <b>0.9</b>   |
|                         | <b>Scan rate</b>  |   | <b>200times/sec</b>  |
|                         | <b>Interfaces supported</b>                               |   | <b>PS2, RS-232, USB</b>  |
|                         | <b>Bar codes supported</b>                                |   | <b>UPC/EAN, UPC/EAN with Supplementals, UCC/EAN 128, Code 39, Code 39 Full ASCII, Tritanopic Code 39, Code 128, Code 128 Full ASCII, Coda-bar, Interleaved 2 of 5, Discrete 2 of 5, Code 93, MSI, Code 11 , RSS variants, Chinese 2 of 5</b> |
| <b>Physical</b>         | <b>Weight</b>   |   | <b>0.5KG</b>   |
|                         | <b>Color</b>  |   | <b>White &amp; Black</b>   |
|                         | <b>Switch</b>   |   | <b>Rubber Switch</b>   |
|                         | <b>Size L*W*H</b>   |   | <b>L173*W90*L66 (mm)</b>   |
|                         | <b>Materials</b>  |   | <b>ABS+PC</b>  |
| <b>Electrical</b>       | <b>Voltage</b>  |   | <b>DC+5V±5%</b>  |
|                         | <b>Static Current</b>                                     |   | <b>100mA</b>   |
|                         | <b>Operate Current</b>                                    |   | <b>&lt; 30mA</b>   |
| <b>User environment</b> | <b>Operating temperature</b>                              |   | <b>0-40℃</b>   |
|                         | <b>Storage temperature</b>                                |   | <b>-20℃—60℃</b>  |
|                         | <b>Operating/Storage humidity</b>                         |   | <b>5%-90%</b>  |
|                         | <b>Impact resistance<br/>Multiple drops onto Concrete</b> |   | <b>1.8m drop to concrete</b>   |
|                         | <b>Certification</b>                                      |   | <b>FCC/ CE</b>   |
|                         | <b>Environmental Light</b>                                | <b>Not affected in normal office/ factory enlighten environment or outside sunshine</b> |  |
| <b>Accessories</b>      |   |   | <b>Includes attached cable</b>   |
| <b>Warranty</b>         |   |   | <b>1 year</b>  |

## **How to use bar-code readers rightly:**

1. Please keep some angles of inclination between bar and reader in order to achieve the best effectiveness.
2. Don't keep 90 angle between bar and reader, or the reader can't scan normally.
3. The bar must be scanned fully, to ensure that the reader can read rightly.

## **Introduction**

**Bar code devices provide an accurate, easy, and fast method of data entry and data storage for computerized information systems.**

**The products we are offering now can be integrated into any host computer system by the following ways:**

**Keyboard**

**Wand**

**RS-232**

**Dual RS-232**

**USB**

**OTHERS**

**All the operating parameters are programmed by bar code programming menu and stored in non-volatile RAM which can retain the settings after power is turn off.**

**For the functions which are not listed in this menu, please consult your supplier for more details.**

**All rights reserved, including those to reprint this manual.**

# **Setup from PC keyboard**

## **for KBW/RS232 interface**

# Features

- \* Simple installation, Keyboard Wedge, Serial, Wand Emulation tc.
- \* Superior keyboard wedge interface-NOVELL compatible-auto Caps Lock detection ensures that the data always appears on the computer just the way it is encoded in the bar code
- \* Simple programming from your keyboard or scan bar codes!
- \* Over 180 configurable options
- \* Automatically clones decoders in under 10 seconds\_ over 300 decoders per hour
- \* Auto detection of the type of computer (PC, XT, AT, PS/2, and X window terminals with a PC compatible keyboard interface)
- \* Can be used with or without the keyboard
- \* Supports over twenty different keyboard country layouts
- \* Map bar code data to any key on the keyboard
- \* Supports editing, operations include (Insert, Stripping, Filtering, Convert Case)
- \* Programmable preamble, post-amble, and termination strings
- \* Macro support, replace a string in the bar code with another
- \* READ/NO\_READ indicators (buzzer and LED)
- \* Superior reading performance Utilizing advanced decoding algorithms
- \* Extended ASC11 support for Code 128 bar codes
- \* Low power consumption

# Using The Setup Mode To Configure The Decoder

The decoder can be configured through the use of the computer keyboard. The decoder must be installed and powered to enter the setup model.

Once the unit is powered up, press and hold the following keys:

**Left-Control ,Caps Lock, Right-Shift ,and Backspace<sup>1</sup>**  
**-or-**  
**Left-Control,F2,Right-Shift,and Backspace<sup>2</sup>**

Once you release the keys, the decoder will produce a series of beeps, change the LED to orange and display a message similar to the following on your display:

F1-F10=Options, Use ARROW KEYS to Toggle/Move ,ESC=Exit

To ensure that you have enough space on your command ling for the decoder options to be displayed, we recommend that you either have your command prompt located at the root directory, or that you load an editor with a new file. This will allow the decoder to use most of the characters on your computer display. For example, in Windows load Windows Write and in OS/2 load the Notepad program.

★★Note: In addition to using your keyboard to enter Setup Mode, you may scan the bar code below.



## Enter Setup Mode

★★Note: This page is only for KBW interface reader, never execute any action if you are using RS232 interface reader.

## Setup Category

| key | Category           | Options   |
|-----|--------------------|---|
| F1  | Interface          | Transmit Speed<br>CRTL/Special Char Delay<br>Wedge Interface<br>Send Numerics As<br>Keyboard Country<br>Output Mode<br>Serial Baud Rate<br>Serial Data Bits<br>Serial Parity<br>Serial Duplex<br>Serial Data Format<br>Inverted Serial Output<br>Serial Intercharacter Delay<br>Serial Caps Lock<br>Serial Num Lock<br>Wand Emulation Append Mode<br>Wand Emulation Max Segment Size<br>Wand Emulation Segment Output Delay<br>Setup Mode Lockout |
| F2  | Decoders/Scanner   | Decoders On/Off<br>Code 39<br>UPC/EAN/JAN Supplements<br>Code 128<br>Interleaved 2 of 5<br>Industrial 2 of 5<br>Codabar<br>Code93<br>MSI/Plessey<br>Code 11<br>Laser/CCD<br>Other   |
| F3  | Editing            | Edit#1-Edit#10  |
| F4  | Macro/Special Keys | Macro #1 – Macro #10 keys   |
| F5  | Strings            | String #1 – String #10  |
| F6  | Reserved           |   |
| F7  | Buzzer/LED         | Power Up Beep<br>Good Read Beep Tone<br>Beep Duration<br>No Read LED Delay<br>LED Power Save Mode   |
| F8  | Status/Diagnostics | Firmware Version and Release Date<br>Laser/CCD Scanner Testing<br>Keyboard Information<br>Show Scan Codes   |
| F9  | Cloning            | Lockout Cloned Reader Setup Mode<br>Press ENTER To Begin Cloning  |
| F10 | Reset All Defaults | Reset All Defaults?   |



## Editing Keys




For those categories which have more than one option, the UP and DOWN arrow and ENTER keys are used to move from one option to the next. In addition to the UP and DOWN arrow keys, The CTRL UP and CTRL DOWN arrow keys are used to move to the bottom and the top of the list. The following is a list of all special editing keys and description of their function.

| Key                     | Description  |
|-------------------------|--|
| Left Arrow, Right Arrow | Toggles through the settings for the current option  |
| Up & Down Arrow         | Moves from one option to the previous or next within the category or group   |
| CTRL Up & Down Arrow    | Moves to the top or bottom of the category or group  |
| Home & End              | Moves to the beginning or end of and input field   |
| ALT Backspace           | Toggles the output mode during configuration, between destructive backspace and non-destructive backspace. Defaults to non-destructive backspace                               |
| CTRL+KEYPAD             | Increases transmit speed during setup  |
| CTRL-KEYPAD             | Decreases transmit speed during setup  |
| CTRL F7                 | Test the current Beep Tone and Beep Duration   |
| CTRL F10                | Resets the current option to the default settings  |
| SHIFT F10               | If you are in a category with groups (F2-F5), SHIFT F10 resets the current group. If you are in a category without groups (F1, F7 – F10), SHIFT F10 resets the entire category |
| ALT F10                 | Resets all options in current category to default settings   |
| CTRL+ Escape            | Exit configuration, saving changes ( Permanent )   |
| SHIFT+ Escape           | Exit configuration, saving changes ( Temporary )   |
| ATL +Escape             | Exit configuration, without saving changes   |

★★Note: If you experience some character loss during setup, you may press the CTRL- ( Keypad Minus ) key to slow character transmission. To speed up character transmission, press the CTRL+ ( Keypad Plus ) key

★★Note: After 5 minutes of inactivity ( no key presses ) the decoder will exit setup mode and save all changes

The following sections document all of the setup mode categories and the groups and individual options within each category. Next to the option name is the default setting for the option. In addition to the default setting, the keys that are used for editing are listed to the right of the option name. The meaning of each of the key icons is as follows:

| Key Icon  | Meaning  |
|---|--|
|  | The left and right arrow keys scroll through available settings for the option   |
|  | An ALT keypad sequence may be used to enter characters for the setting   |
|  | All ASCII data is valid for the option, All characters are available for entry into the field  |
| <b>GROUP</b>  | Used to indicate that the option represents a group of sub-options. The left and right arrows scroll through the list of option groups. After selecting the option group, up and down arrows are used to configure the sub-options |
| <b>OPERATION</b>  | Used to indicate that the option represents an edit operation and that all of the options listed below it are specific to that operation until the next operation is defined   |
| <b>STRING TYPE</b>  | Used to indicate that the option represents a string type and that all of the options listed below it are specific to that type of string until the next string type is defined  |

For more detail explanation , please refer to our manual – ADA6K989

## Multiscan Functions-1

OUTPUT FIRMWARE VERSION



0A

RESET CONFIGURATION TO DEFAULTS



0B

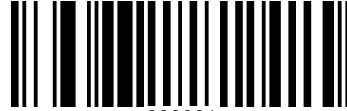
## OUTPUT MODE

OUTPUT MODE-KEYBOARD WEDGE



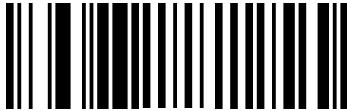
000600

OUTPUT MODE-SERIAL



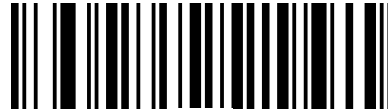
000601

OUTPUT MODE-WAND EMULATION



000602

OUTPUT MODE-RESET



0B006

## BUZZER/LED

GOOD READ BEEP TONE-NONE



014200

GOOD READ BEEP TONE-RESET



0B142

GOOD READ BEEP TONE-MEDIUM



014301

GOOD READ BEEP TONE-ENABLE



01451

## Multiscan Functions-2

### IMAGE

DECODE OPTIONS REVERSE IMAGE-ENABLE



DECODE OPTIONS REVERSE IMAGE- DISABLE



### CODE ID

DECODE OPTIONS SEND BAR CODE ID- DISABLE



DECODE OPTIONS SEND BAR CODE ID-AS A PREFIX



DECODE OPTIONS SEND BAR CODE ID-RESET



DECODE OPTIONS SEND BAR CODE ID- AS A PREFIX



### READING MODE

LASER/CCD MODE- SINGLE SCAN



LASER/CCD MODE- SINGLE SCAN NO TRIGGER



LASER/CCD MODE- MULTI SCAN



LASER/CCD MODE- MULTI SCAN NO TRIGGER



LASER/CCD MODE- CONTINUOUS SCAN



LASER/CCD MODE- PULSE



## **Interface – KBW**

### **PC Communication**

WEDGE MODE- AUTODETECT



WEDGE MODE – SCAN SET 2 PASS THRU



### **Transmit Speed**

TRANSMIT SPEED-0



TRANSMIT SPEED-25



### **LANGUAGE**

KEYBOARD COUNTRY- USA



KEYBOARD COUNTRY- GERMAN



KEYBOARD COUNTRY- FRANCE



KEYBOARD COUNTRY- UNIVERSAL



## Interface- Serial- 1

### BAUD RATE

SERIAL BAUD RATE-2400



SERIAL BAUD RATE- 4800



SERIAL BAUD RATE- 9600



SERIAL BAUD RATE- 19200



### HAND SHAKE

SERIAL HANDSHAKE – NONE



SERIAL HANDSHAKE – XON/OFF



SERIAL HANDSHAKE - RTS/CTS



SERIAL HANDSHAKE - ACK/NAK



SERIAL HANDSHAKE TIMEOUT- 2 SECONDS



SERIAL HANDSHAKE - 5 SECOND



## Interface- Serial- 2

### PARAMETERS

SERIAL DATA BITS – 8



SERIAL DATA BITS - 7



### STOP BITS

SERIAL STOP BITS – 1



SERIAL STOP BITS – 2



### PARITY

SERIAL PARITY – NONE



SERIAL PARITY – ODD



SERIAL PARITY – EVEN



SERIAL PARITY – MARK



SERIAL PARITY – SPACE



SERIAL PARITY – RESET



## Interface - WAND

CODE 128 WAND EMULATION – ENABLE



00141

CODE 128 WAND EMULATION - DISABLE



00140

## SPEED

WAND EMULATION SPEED – FASTEST (0 )



001500

WAND EMULATION SPEED – SLOWEST (3 )



001503

## BAR LEVEL

WAND EMULATION- BAR =1 (HIGH)



00161

WAND EMULATION- BAR =0 (LOW)



00160

## CODE 11

CODE 11 – ENABLE



01261

CODE 11 - DISABLE



01260

## CODE 39

CODE 39 – ENABLE



00221

CODE 39 - DISABLE



00220

FULL ASC II – ENABLE



00231

FULL ASC II - DISABLE



00230

## Symbologies On/Off – 1

### CODE 93

CODE 93 – ENABLE



CODE 93 - DISABLE



CODE 128 – ENABLE



CODE 128 - DISABLE



CODE 128 ISBT – ENABLE



CODE 128 ISBT - DISABLE



### CODABAR

CODABAR – ENABLE



CODABAR - DISABLE



### INTERLEAVED 2 OF 5

I2OF5 – ENABLE



I2OF5 - DISABLE



### INDUSTRIAL 2 OF 5

ID2OF5 – ENABLE



ID2OF5 - DISABLE





## Symbologies On/Off - 2

### MSI/PLESSEY

MSI – ENABLE



MSI - DISABLE



### UPC/EAN

UPC- A ENABLE



UPC- A DISABLE



UPC-E ENABLE



UPC- E DISABLE



EAN—13   ENABLE



EAN—13   DISABLE



EAN—8    ENABLE



EAN—8    DISABLE



## Symbologies Set Up – 1

### CODE 11

CODE 11 ID CHARACTER – ‘m’



CODE 11 ID CHARACTER – ‘z’



CODE 11 LASER/CCD REDUNDANCY- ENABLE



CODE 11 LASER/CCD REDUNDANCY- DISABLE



### CODE 39

CODE 39 SS CHAR – NONE



CODE 39 SS CHAR ‘+’



CODE 39 SEND START/STOP CHARS ENABLE



CODE 39 SEND START/STOP CHARS DISABLE



CODE 39 ID CHARACTER ‘a’



CODE 39 ID CHARACTER ‘z’



CODE 39 LASER/CCD REDUNDANCY ENABLE



CODE 39 LASER/CCD REDUNDANCY DISABLE



## Symbologies Set Up – 2

### CODE 93

CODE 93 ID CHARACTER – ‘h’



CODE 93 ID CHARACTER – ‘z’



CODE 93 LASER/CCD REDUNDANCY- ENABLE



CODE 93 LASER/CCD REDUNDANCY- DISABLE



### CODE 128

CODE 128 ID CHARACTER – ‘g’



CODE 128 ID CHARACTER – ‘z’



CODE128 LASER/CCD REDUNDANCY- ENABLE



CODE128 LASER/CCD REDUNDANCY- DISABLE



### CODABAR

CODABAR SEND START/STOP CHARS ENABLE



CODABAR SEND START/STOP CHARS DISNABLE



CODABAR WIDE GAPS ALLOWED ENABLE



CODABAR WIDE GAPS ALLOWED DISABLE



## Symbologies Set Up – 3

### CODABAR

CODABAR ID CHARACTER – ‘k’



CODABAR ID CHARACTER – ‘z’



CODABAR LASER/CCD REDUNDANCY- ENABLE



CODABAR LASER/CCD REDUNDANCY- DISABLE



### Interleaved 2 of 5

I2OF5 ID CHARACTER – ‘k’



I2OF5 CHARACTER – ‘z’



I2OF2 LASER/CCD REDUNDANCY- ENABLE



I2OF5 LASER/CCD REDUNDANCY- DISABLE



### Industrial 2 of 5

ID2OF5 ID CHARACTER – ‘k’



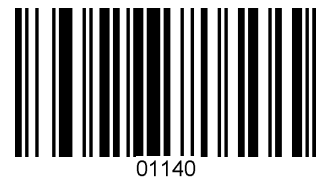
ID2OF5 CHARACTER – ‘z’



ID2OF2 LASER/CCD REDUNDANCY- ENABLE



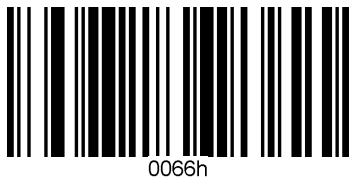
ID2OF5 LASER/CCD REDUNDANCY- DISABLE



## Symbologies Set Up – 4

### MSI/PLESSEY

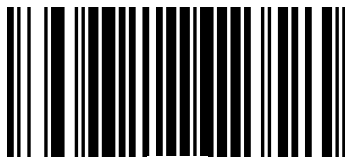
MSI ISBN ID CHARACTER – ‘f’



0066h

0053f

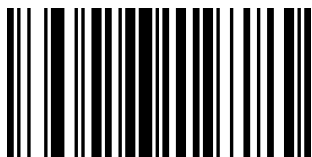
MSI ISBN ID CHARACTER – ‘z’



0053Z

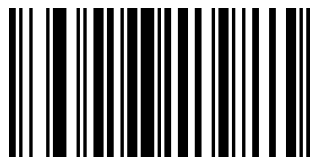
0053z

MSI LASER/CCD REDUNDANCY – ENABLE



01251

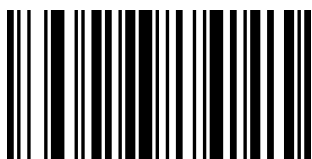
MSI LASER/CCD REDUNDANCY – DISABLE



01250

### UPC/EAN

EXPAND UPC- E TO UPC- A ENABLE



00381

EXPAND UPC- E TO UPC- A DISABLE



00380

EXPAND UPC- A TO EAN- 13 ENABLE



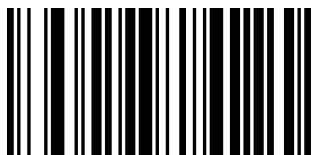
00391

EXPAND UPC- A TO EAN- 13 DISABLE



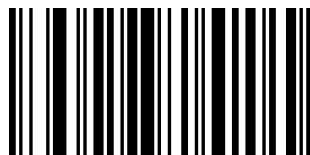
00390

CONVERT EAN- 13 TO ISBN ENABLE



00481

CONVERT EAN- 13 TO ISBN DISABLE



00480

UPC- A ID CHARACTER- b



0049b

UPC- A ID CHARACTER- z

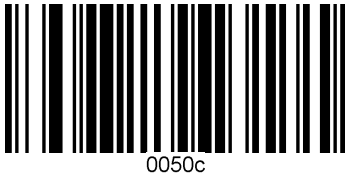


0049Z

## Symbologies Set Up -5

### UPC/EAN

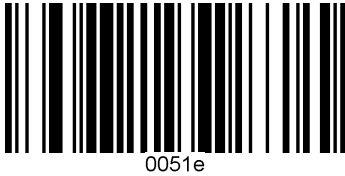
UPC- E ID CHARACTER- c



UPC- E ID CHARACTER- z



EAN-13 ID CHARACTER- e



EAN-13 ID CHARACTER- z



EAN-8 ID CHARACTER- d



EAN-8 ID CHARACTER- z



ISBN ID CHARACTER- f



ISBN ID CHARACTER- z



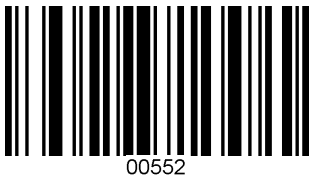
UPC/EAN SUPPLEMENTS- DISABLE



UPC/EAN SUPPLEMENTS- 2 DIGIT ONLY



UPC/EAN SUPPLEMENTS- 5 DIGIT ONLY



UPC/EAN SUPPLEMENTS- 2 & 5 DIGIT ONLY



**Symbologies Set Up – 6**  
**UPC/EAN**

UPC/ENA LASER/CCD REDUNDANCY ENABLE

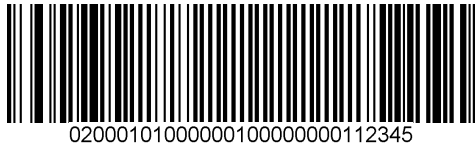


UPC/ENA LASER/CCD REDUNDANCY DISABLE



## EDIT SETU BAR CODES

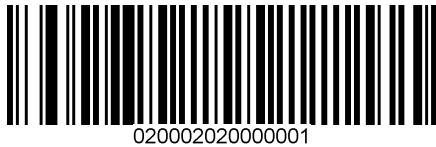
EDIT#1 – STRIP 1 LEADING CHARACTER ON  
ALL BAR CODES THAT START WITH ‘12345’



EDIT#1 - OFF



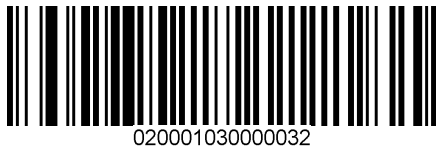
EDIT#2 – STRIP 1 TRAILING CHARACTER



EDIT#2 - OFF



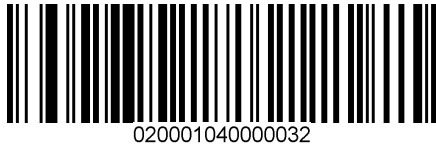
EDIT #1 – FILTER LEADING SPACES



EDIT#1 - OFF



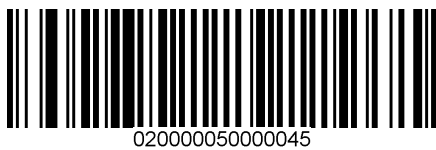
EDIT #1 – FILTER TRAILING SPACES



EDIT#1 - OFF



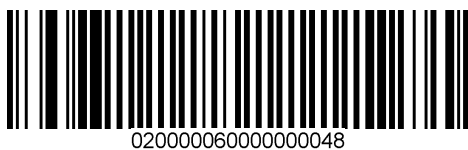
EDIT - FILTER ALL ‘I’ CHARACTERS



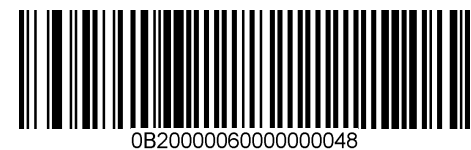
EDIT - DISABLE FILTER OF ALL ‘I’ CHARS



EDIT - INSERT LEADING ZERO



EDIT - DISABLE INSERT LEADING ZERO





## MACRO/SPECIAL KEYS SETUP BAR CODES

MACRO #1 – FIND ‘1’ AND REPLACE WITH ‘ONE’



MACRO #1 - DISABLED



MACRO #2 – FIND ‘2’ AND REPLACE WITH ‘TWO’  
FOR CODE 39 ONLY



MACRO #2– DISABLED



MACRO – FIND ‘0’ AND REPLACE WITH ‘A’



MACRO – FIND ‘0’ AND REPLACE WITH ‘A’ - DISABLE



SPECIAL KEY – MAP F3 TO ‘0’



SPECIAL KEY – DISABLE F3 KEY MAPPING



SPECIAL KEY – MAP KEYPAD ENTER TO ‘2’

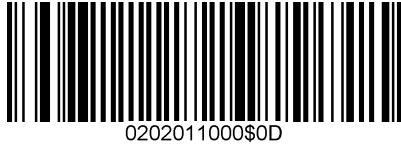


SPECIAL KEY – DISABLE KEYPAD ENTER MAPPING



## TERMINATION STRING SETUP BAR CODES

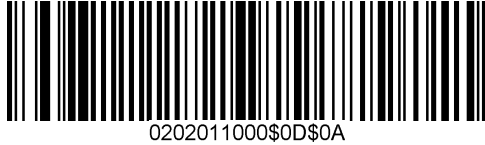
STRING #1 – TERMINATION CHAR – CR



STRING #1 – TERMINATION - LF



STRING #1 – TERMINATION CR+LF



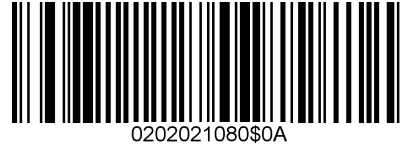
STRING #1 – DISABLE



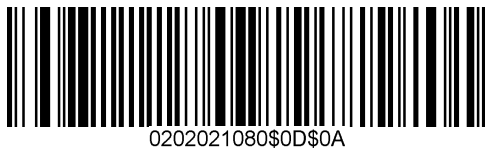
STRING #2 – CODE 128 TERMINATION CHAR – CR



STRING #2 – CODE128 TERMINATION CHAR - LF



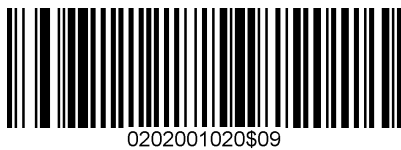
STRING #2 – CODE 128 TERMINATION CHAR – CR+LF



STRING #2 – CODE128 TERMINATION CHAR - REMOVED



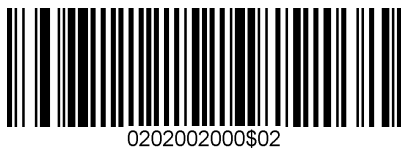
STRING – CODE 39 TERMINATION CHAR – TAB



STRING – CODE 39 TERMINATION CHAR – TAB-REMOVED



STRING- ALL CODES PREAMBLE – STX



STRING – ALL CODES POSTAMBLE - ETX



- A      DISPLAY DECODER FIRMWARE NUMBER**
  
- B      RESET DECODER OR OPTION TO DEFAULT SETTINGS**
  
- C      ENTER KEYBOARD PROGRAMMING MODE- ONLY WHEN IN KEYBOARD WEDGE MODE**

## OPTION NUMBERS AND DESCRIPTIONS

; F1- INTERFACE OPTIONS

### OPTION

| NUMBER | DESCRIPTION                   | TYPE | MIN | MAX | DEFAULT         |
|--------|-------------------------------|------|-----|-----|-----------------|
| 000    | KEYBOARD WEDGE TRANSMIT SPEED | BYTE | 0   | 99  | 0-FASTEST       |
| 001    | SPECIAL CHAR TRANSMIT DELAY   | BYIE | 0   | 255 | 50-(MSECS)      |
| 002    | KEYBOARD WEDGE MODE           | 4BIT | 0   | 6   | 0-(AUTODETECT)  |
| 003    | AUTO-DETECT CAPS LOCK         | BIT  | 0   | 1   | 0-(AUTODETECT)  |
| 004    | NUMERIC KEY OUTPUT MODE       | BIT  | 0   | 1   | 0-MAIN KBD KEYS |
| 005    | KEYBOARD COUNTER              | BYIE | 0   | 25  | 0- (USA)        |
| 006    | DECODER OUTPUT MODE           | 4BIT | 0   | 2   | 0- KEYBRD WEDGE |
| 007    | SERIAL BAUD RATE              | 4BIT | 0   | 7   | 5-(9600)        |
| 008    | SERIAL DATA BITS              | BIT  | 0   | 1   | 1-8 BITS        |
| 009    | SERIAL STOP BITS              | BIT  | 0   | 1   | 0-1STOP BIT     |
| 010    | SERIAL PARITY                 | 4BIT | 0   | 4   | 0-NONE          |
| 011    | SERIAL INTERCHARACTER DELAY   | BYIE | 0   | 50  | 0-(MSECS)       |
| 012    | SERIAL HANDSHAKE MODE         | 4BIT | 0   | 3   | 0-NONE          |
| 013    | SERIAL HANDSHAKE TIMEOUT      | BYIE | 0   | 100 | 20-(1SECONDS)   |
| 014    | CODE 128 WAND EMULATION       | 4BIT | 0   | 1   | 0-(DISABLED)    |
| 015    | WAND EMULATION OUTPUT SPEED   | 4BIT | 0   | 3   | 2-SLOW          |
| 016    | WAND EMULATION BAR MODE       | BIT  | 0   | 1   | 1-(BAR =1)      |
| 017    | RESERVED                      |      |     |     |                 |
| 018    | RESERVED                      |      |     |     |                 |
| 019    | RESERVED                      |      |     |     |                 |
| 020    | RESERVED                      |      |     |     |                 |
| 021    | PROGRAM MODE LOCKOUT          | BIT  | 0   | 1   | 0-DISABLED      |

;F2-Code39 OPTIONS

### OPTION

| NUMBER | DESCRIPTION                | TYPE | MIN | MAX | DEFAULT    |
|--------|----------------------------|------|-----|-----|------------|
| 022    | Code39 DECODER             | BIT  | 0   | 1   | 1-ENABLED  |
| 023    | FULL ASCII                 | BIT  | 0   | 1   | 0-DISABLED |
| 024    | MODULO 43 CHECK DIGIT      | BIT  | 0   | 1   | 0-DISABLED |
| 025    | SEND CHECK DIGIT           | BIT  | 0   | 1   | 0-DISABLED |
| 026    | APPEND MODE                | BIT  | 0   | 1   | 0-DISABLED |
| 027    | SECONDARY START/STOP CHARS | 4BIT | 0   | 1   | 0-NONE     |
| 028    | SEND START/STOP CHARS      | BIT  | 0   | 1   | 0-DISABLED |
| 029    | MAXIMUM LENGTH             | BYTE | 0   | 49  | 49         |
| 030    | MINIMUM LENGTH             | BYTE | 0   | 49  | 0          |
| 031    | ID CHARACTER               | CHAR | 1   | 1   | 'a'        |
| 032    | CONTROL CHARACTER OVERRIDE | BIT  | 0   | 1   | 0-DISABLED |
| 033    | LASER/CCD REDUNDANCY       | BIT  | 0   | 1   | 0-DISABLED |

;F2-UPC/EAN OPTIONS

**OPTION**

| NUMBER | DESCRIPTION              | TYPE | MIN | MAX | DEFAULT    |
|--------|--------------------------|------|-----|-----|------------|
| 034    | UPC-A DECODER            | BIT  | 0   | 1   | 1-ENABLED  |
| 035    | UPC-E DECODER            | BIT  | 0   | 1   | 1- ENABLED |
| 036    | EAN/JAN-13 DECODER       | BIT  | 0   | 1   | 1- ENABLED |
| 037    | EAN/JAN-8 DECODER        | BIT  | 0   | 1   | 1- ENABLED |
| 038    | EXPAND UPC-E TO UPC-A    | BIT  | 0   | 1   | 0-DISABLED |
| 039    | EXPAND UPC-A TO ENA-13   | BIT  | 0   | 1   | 0-DISABLED |
| 040    | SEND UPC-A SYSTEM CHAR   | BIT  | 0   | 1   | 1- ENABLED |
| 041    | SEND UPC-E SYSTEM CHAR   | BIT  | 0   | 1   | 1- ENABLED |
| 042    | SEND UPC-A CHECK DIGIT   | BIT  | 0   | 1   | 1- ENABLED |
| 043    | SEND UPC-E CHECK DIGIT   | BIT  | 0   | 1   | 1- ENABLED |
| 044    | SEND EAN-13 COUNTRY CODE | BIT  | 0   | 1   | 1- ENABLED |
| 045    | SEND EAN-8 COUNTRY CODE  | BIT  | 0   | 1   | 1- ENABLED |
| 046    | SEND EAN-13 CHECK DIGIT  | BIT  | 0   | 1   | 1- ENABLED |
| 047    | SEND EAN-8 CHECK DIGIT   | BIT  | 0   | 1   | 1- ENABLED |
| 048    | CONVERT EAN-13 TO ISBN   | BIT  | 0   | 1   | 0-DISABLED |
| 049    | UPC-A ID CHARACTER       | CHAR | 1   | 1   | ‘b’        |
| 050    | UPC-E ID CHARACTER       | CHAR | 1   | 1   | ‘c’        |
| 051    | EAN-13 ID CHARACTER      | CHAR | 1   | 1   | ‘e’        |
| 052    | EAN-8 ID CHARACTER       | CHAR | 1   | 1   | ‘d’        |
| 053    | ISBN ID CHARACTER        | CHAR | 1   | 1   | ‘f’        |
| 054    | LASER/CCD REDUNDANCY     | BIT  | 0   | 1   | 0-DISABLED |

;F2UPC/EAN OPTIONS

**OPTION**

| NUMBER | DESCRIPTION                 | TYPE   | MIN | MAX | DEFAULT    |
|--------|-----------------------------|--------|-----|-----|------------|
| 055    | UPC/EAN SUPPLEMENTS DECODER | 2BIT   | 0   | 3   | 0-DISABLED |
| 056    | UPC-A SUPPLEMENTS           | 2BIT   | 0   | 2   | 1-OPTIONAL |
| 057    | UPC-E SUPPLEMENTS           | 2BIT   | 0   | 2   | 1-OPTIONAL |
| 058    | EAN-13 SUPPLEMENTS          | 2BIT   | 0   | 2   | 1-OPTIONAL |
| 059    | EAN-8 SUPPLEMENTS           | 2BIT   | 0   | 2   | 1-OPTIONAL |
| 060    | ISBN SUPPLEMENTS            | 2BIT   | 0   | 2   | 1-OPTIONAL |
| 061    | SUPPLEMENTS SEPARTOR        | STRING | 0   | 9   | NONE       |

## ;F2CODE-93 OPTONS

**OPTION**

| NUMBER | DESCRIPTION                | TYPE | MIN | MAX | DEFAULT    |
|--------|----------------------------|------|-----|-----|------------|
| 062    | Code 93 DECODER            | BIT  | 0   | 1   | 1-ENABLED  |
| 063    | APPEND MODE                | BIT  | 0   | 1   | 0-DISABLED |
| 064    | MAXIMUM LENGTH             | BYTE | 0   | 81  | 81         |
| 065    | MINIMUM LENGTH             | BYTE | 0   | 81  | 0          |
| 066    | ID CHARACTER               | CHAR | 1   | 1   | ‘h’        |
| 067    | CONTROL CHARACTER OVERRIDE | BIT  | 0   | 1   | 0-DISABLED |
| 068    | LASER/CCD REDUNDANCY       | BIT  | 0   | 1   | 0-DISABLED |

## ;F2 CODE 128 OPTIONS

**OPTION**

| NUMBER | DESCRIPTION                | TYPE   | MIN | MAX | DEFAULT           |
|--------|----------------------------|--------|-----|-----|-------------------|
| 069    | CODE128 DECODER            | BIT    | 0   | 1   | 1-ENABLED         |
| 070    | ISBT DECODER               | BIT    | 0   | 1   | 0-DISABLED        |
| 071    | ISBT CONCATENATION PAIRS   | STRING | 0   | 4   | NONE              |
| 072    | ISBT PART #1PART           | STRING | 0   | 4   | NONE              |
| 073    | ISBT PART #2               | STRING | 0   | 4   | NONE              |
| 074    | ISBT PART #3               | STRING | 0   | 4   | NONE              |
| 075    | ISBT PART #4               | STRING | 0   | 4   | NONE              |
| 076    | ISBT PART #5               | STRING | 0   | 4   | NONE              |
| 077    | ISBT PART #6               | STRING | 0   | 4   | NONE              |
| 078    | FIELD SEPARATOR CHARACTER  | CHAR   | 1   | 1   | 01DH (ASCII ‘GS’) |
| 079    | MAXIMUM LENGTH             | BYTE   | 0   | 164 | 164               |
| 080    | MINIMUM LENGTH             | BYTE   | 0   | 164 | 0                 |
| 081    | ID CHARACTER               | CHAR   | 1   | 1   | ‘g’               |
| 082    | UCC/EAN OUTPUT PREFIX      | SRTING | 0   | 3   | NONE              |
| 083    | CONTROL CHARACTER OVERRIDE | BIT    | 0   | 1   | 0-DISABLED        |
| 084    | LASER/CCD REDUNDANCY       | BIT    | 0   | 1   | 0-DISABLED        |

## ; F2 CODABAR OPTIONS

**OPTION**

| NUMBER | DESCRIPTION                | TYPE | MIN | MAX | DEFAULT    |
|--------|----------------------------|------|-----|-----|------------|
| 085    | CODABAR DECODER            | BYTE | 0   | 1   | 1—ENABLED  |
| 086    | SEND START/STOP CHARACTERS | 2BIT | 0   | 3   | 0-DISABLED |
| 087    | CHECK DIGIT                | 2BIT | 0   | 2   | 0-DISABLED |
| 088    | SEND CHECK DIGIT           | BIT  | 0   | 1   | 0-DISABLED |
| 089    | CLSL FORMATTING            | BIT  | 0   | 1   | 0-DISABLED |
| 090    | WIDE INTERCHARACTER GAPS   | BIT  | 0   | 1   | 0-DISABLED |
| 091    | ABC CONCATENATION          | BIT  | 0   | 1   | 0-DISABLED |
| 092    | MAXIMUM LENGTH             | BYTE | 1   | 62  | 62         |
| 093    | MINIMUM LENGTH             | BYTE | 1   | 62  | 1          |
| 094    | ID CHARACTER               | CHAR | 1   | 1   | ‘k’        |
| 095    | LASER/CCD REDUNDANCY       | BIT  | 0   | 1   | 0-DISABLED |

## ;F2- INTERLEAVED 2 OF 5 OPTIONS

**OPTION**

| NUMBER | DESCRIPTION          | TYPE | MIN | MAX | DEFAULT    |
|--------|----------------------|------|-----|-----|------------|
| 096    | I 2 of 5 DECODER     | BIT  | 0   | 1   | 1-ENABLED  |
| 097    | CHECK DIGIT          | BIT  | 0   | 2   | 0-DISABLED |
| 098    | SEND CHECK DIGIT     | BIT  | 0   | 1   | 0-DISABLED |
| 099    | MAXIMUM LENGTH       | BYTE | 0   | 100 | 100        |
| 100    | MINIMUM LENGTH       | BYTE | 0   | 100 | 0          |
| 101    | FIXED LENGTH         | BIT  | 0   | 1   | 0-DISABLED |
| 102    | FIXED LENGTH SIZE#1  | BYTE | 2   | 100 | 6          |
| 103    | FIXED LENGTH SIZE#2  | BYTE | 2   | 100 | 14         |
| 104    | ID CHARACTER         | CHAR | 1   | 1   | 'i'        |
| 105    | LASER/CCD REDUNDANCY | BIT  | 0   | 1   | 1-ENABLED  |

## ; F2- INDUSTRIAL 2 OF 5 OPTIONS

**OPTION**

| NUMBER | DESCRIPTION               | TYPE | MIN | MAX | DEFAULT            |
|--------|---------------------------|------|-----|-----|--------------------|
| 106    | INDUSTRIAL 2 OF 5 DECODER | BIT  | 0   | 1   | 1-ENABLED          |
| 107    | START/STOP CHARACTERS     | BIT  | 0   | 1   | 0-3 BAR START/STOP |
| 108    | MAXIMUM LENGTH            | BYTE | 2   | 49  | 49                 |
| 109    | MINIMUM LENGTH            | BYTE | 2   | 49  | 2                  |
| 110    | FIXED LENGTH              | BIT  | 0   | 1   | 0-DISABLED         |
| 111    | FIXED LENGTH SIZE#1       | BYTE | 2   | 49  | 6                  |
| 112    | FIXED LENGTH SIZE#2       | BYTE | 2   | 49  | 10                 |
| 113    | ID CHARACTER              | CHAR | 1   | 1   | 'i'                |
| 114    | LASER/CCD REDUNDANCY      | BIT  | 0   | 1   | 1-ENABLED          |

## ; F2-MSI OPTIONS

**OPTION**

| NUMBER | DESCRIPTION          | TYPE                            | MIN | MAX | DEFAULT    |
|--------|----------------------|---------------------------------|-----|-----|------------|
| 115    | MSI DECODER          | BIT                             | 0   | 1   | 1-ENABLED  |
| 116    | CHECK DIGIT          | 2BIT                            | 0   | 2   | 0-MOD 10   |
| 117    | SEND CHECK DIGIT     | 2BIT                            | 0   | 2   | 0-DISABLED |
| 118    | ISBN DECODER         | BIT                             | 0   | 1   | 0-DISABLED |
| 119    | MAXIMUM LENGTH       | BYTE                            | 3   | 63  | 63         |
| 120    | MINIMUM LENGTH       | BYTE                            | 3   | 63  | 3          |
| 121    | FIXED LENGTH         | BIT                             | 0   | 3   | 0-DISABLED |
| 122    | FIXED LENGTH SIZE#1  | BYTE                            | 3   | 63  | 6          |
| 123    | FIXED LENGTH SIZE#2  | BYTE                            | 3   | 63  | 14         |
| 124    | MAXIMUM LENGTH       | CHAR                            | 1   | 1   | 'I'        |
| 053    | ISBN ID CHARACTER    | USES SAME ID AS ISBN IN UPC/EAN |     |     |            |
| 125    | LASER/CCD REDUNDANCY | BIT                             | 0   | 1   | 1-ENABLED  |

; F2 CODE 11 OPTIONS

**OPTION**

| NUMBER | DESCRIPTION          | TYPE | MIN | MAX | DEFAULT    |
|--------|----------------------|------|-----|-----|------------|
| 126    | CODE 11 DECODER      | BIT  | 0   | 1   | 1-ENABLED  |
| 127    | CHECK DIGIT          | BIT  | 0   | 1   | 0-MOD 11   |
| 128    | SEND CHECK DIGIT     | 2BIT | 0   | 2   | 0-DISABLED |
| 129    | MAXIMUM LENGTH       | BYTE | 2   | 83  | 83         |
| 130    | MINIMUM LENGTH       | BYTE | 2   | 83  | 2          |
| 131    | ID CHARACTER         | CHAR | 1   | 1   | ‘M’        |
| 132    | LASER/CCD REDUNDANCY | BIT  | 0   | 1   | 0-DISABLED |

; F2 – LASER/CCD OPTIONS

**OPTION**

| NUMBER | DESCRIPTION                    | TYPE | MIN | MAX | DEFAULT         |
|--------|--------------------------------|------|-----|-----|-----------------|
| 133    | OPERATING MODE                 | 4BIT | 0   | 5   | 0-SINGLE SCAN   |
| 134    | TIMEOUT                        | BYTE | 1   | 12  | 2- ( 2 SECOND ) |
| 135    | PULSES RATE                    | 4BIT | 2   | 7   | 3               |
| 136    | PULSES TO CONTINUOUS THRESHOLD | BYTE | 0   | 255 | 0- OFF          |
| 137    | DUPLICATE READ DELAY           | BYTE | 0   | 127 | 5- ( 5 SECOND ) |

; F2 – OTHER DECODING OPTIONS

**OPTION**

| NUMBER | DESCRIPTION             | TYPE | MIN | MAX | DEFAULT    |
|--------|-------------------------|------|-----|-----|------------|
| 138    | QUIET ZONES ( MARGINS ) | BIT  | 0   | 1   | 1-LARGE    |
| 139    | REVERSE IMAGE DECODING  | BIT  | 0   | 1   | 0-DISABLED |
| 140    | SEND BAR CODE TYPE ID   | BIT  | 0   | 1   | 0-DISABLED |

; F7- DEFINE THE BUZZER AND LED OPTIONS

**OPTION**

| NUMBER | DESCRIPTION              | TYPE | MIN | MAX | DEFAULT          |
|--------|--------------------------|------|-----|-----|------------------|
| 141    | POWER UP BEEP            | BIT  | 0   | 1   | 1- ENABLED       |
| 142    | GOOD READ BEEP TONE 4BIT | 4BIT | 0   | 5   | 2- MEDIUM        |
| 143    | GOOD READ BEEP DURATION  | BYTE | 0   | 2   | 1- MEDIUM        |
| 144    | NO READ LED DELAY        | BYTE | 0   | 65  | 20- ( 2SECONDS ) |
| 145    | LED POWER SAVE MODEBIT   | BIT  | 0   | 1   | 0-DISABLED       |



;F4- DEFINE THE MACRO KEY MAPPING OPTIONS – MAP THE KEY TO A CHARACTER THAT CAN BE PRODUCED IN A BAR CODE SO THAT WHEN THE BAR CODE IS SCANNED – THE SPECIAL KEY IS OUTPUT.

| <b>OPTION</b> |                          |             |            |            |                |
|---------------|--------------------------|-------------|------------|------------|----------------|
| <b>NUMBER</b> | <b>DESCRIPTION</b>       | <b>TYPE</b> | <b>MIN</b> | <b>MAX</b> | <b>DEFAULT</b> |
| 160           | F1 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 161           | F2 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 162           | F3 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 163           | F4 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 164           | F5 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 165           | F6 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 166           | F7 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 167           | F8 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 168           | F9 MACRO                 | BYTE        | 0          | 255        | 255- OFF       |
| 169           | F10 MACRO                | BYTE        | 0          | 255        | 255- OFF       |
| 170           | F11 MACRO                | BYTE        | 0          | 255        | 255- OFF       |
| 171           | F12 MACRO                | BYTE        | 0          | 255        | 255- OFF       |
| 172           | INSERT KEY MACRO         | BYTE        | 0          | 255        | 255- OFF       |
| 173           | DELETE KEY MACRO         | BYTE        | 0          | 255        | 255- OFF       |
| 174           | HOME KEY MACRO           | BYTE        | 0          | 255        | 255- OFF       |
| 175           | END KEY MACRO            | BYTE        | 0          | 255        | 255- OFF       |
| 176           | PAGE UP KEY MACRO        | BYTE        | 0          | 255        | 255- OFF       |
| 177           | PAGE DOW KEY MACRO       | BYTE        | 0          | 255        | 255- OFF       |
| 178           | LEFT ARROW KEY MACRO     | BYTE        | 0          | 255        | 255- OFF       |
| 179           | RIGHT ARROW KEY MACRO    | BYTE        | 0          | 255        | 255- OFF       |
| 180           | UP ARROW KEY MACRO       | BYTE        | 0          | 255        | 255- OFF       |
| 181           | DOWN ARROW KEY MACRO     | BYTE        | 0          | 255        | 255- OFF       |
| 182           | KEY PAD ENTER KEY MACRO  | BYTE        | 0          | 255        | 255- OFF       |
| 183           | ALT KEY MAKE MACRO       | BYTE        | 0          | 255        | 255- OFF       |
| 184           | ALT KEY BREAK MACRO      | BYTE        | 0          | 255        | 255- OFF       |
| 185           | CTRL KEY MAKE MACRO BYTE | BYTE        | 0          | 255        | 255- OFF       |
| 186           | CTRL KEY BREAK MACRO     | BYTE        | 0          | 255        | 255- OFF       |
| 187           | SHIFT KEY MAKE MACRO     | BYTE        | 0          | 255        | 255- OFF       |
| 188           | SHIFT KEY BREAK MACRO    | BYTE        | 0          | 255        | 255- OFF       |

## ;F3- EDIT SETUP BAR CODE

| OPTION                          |                           |  |     |     |          |
|---------------------------------|---------------------------|--|-----|-----|----------|
| NUMBER                          | DESCRIPTION               | TYPE   | MIN | MAX | DEFAULT  |
| 200                             | EDIT OPTION               | SEE BELOW  |     |     | DISABLED |
|                                 | EDIT BAR CODE DATA FORMAT |  |     |     |          |
|                                 |                           | 2 DIGIT EDIT # (00-10)                                   |     |     |          |
|                                 |                           | 00— WILL AUTOMATICALLY SELECT THE FIRST AVAILABLE EDIT # |     |     |          |
|                                 |                           | 2 DIGIT EDIT TYPE (1—9)                                  |     |     |          |
|                                 |                           | 00— OFF  |     |     |          |
|                                 |                           | 01— STRIP LEADING CHARACTERS                             |     |     |          |
|                                 |                           | 02— STRIP TRAILING CHARACTERS                            |     |     |          |
|                                 |                           | 03—FILTER LEADING CHARACTERS                             |     |     |          |
|                                 |                           | 04— FILTER LEADING CHARACTERS                            |     |     |          |
|                                 |                           | 05— FILTER CHARACTERS                                    |     |     |          |
|                                 |                           | 06— INSERT LEADING CHARACTER                             |     |     |          |
|                                 |                           | 07— INSERT TRAILING CHARACTER                            |     |     |          |
|                                 |                           | 08— CONVERT TO UPPERCASE                                 |     |     |          |
|                                 |                           | 09— CONVERT TO LOWERCASE                                 |     |     |          |
| 2 DIGIT ACTIVE FOR TYPE (00—14) |                           |  |     |     |          |
|                                 |                           | 00— ALL BAR CODE TYPES                                   |     |     |          |
|                                 |                           | 01— ALL BAR CODE TYPES ALWAYS                            |     |     |          |
|                                 |                           | 02—CODE 39   |     |     |          |
|                                 |                           | 03—UPC—A   |     |     |          |
|                                 |                           | 04—UPC—E   |     |     |          |
|                                 |                           | 05—EAN—13  |     |     |          |
|                                 |                           | 06—EAN—8   |     |     |          |
|                                 |                           | 07—ISBN  |     |     |          |
|                                 |                           | 08—CODE 128  |     |     |          |
|                                 |                           | 09—I 2 OF 5  |     |     |          |
|                                 |                           | 10—CODABAR   |     |     |          |
|                                 |                           | 11—CODE93  |     |     |          |
|                                 |                           | 12—MSI   |     |     |          |
|                                 |                           | 13—CODE11  |     |     |          |
| 14— INDUSTRIAL 2 OF 5           |                           |  |     |     |          |
| 2 DIGIT ACTIVE FOR SIZE (00—99) |                           |  |     |     |          |
| 3 DIGIT BYTE 1 VALUE            |                           |  |     |     |          |
| 3 DIGIT BYTE 2 VALUE            |                           |  |     |     |          |
| 3 DIGIT BYTE 3 VALUE            |                           |  |     |     |          |
| 3DIGIT CONTAINS OFFSET 000—255  |                           |  |     |     |          |
|                                 |                           | 000= START CHARACTER+0                                   |     |     |          |
|                                 |                           | 255= END CHARACTER -0                                    |     |     |          |
|                                 |                           | 5 CHARACTER CONTAINS STRING – UP TO 5 CHARS              |     |     |          |

; F4- MACRO SETUP BAR CODE

**OPTION**

| <b>NUMBER</b> | <b>DESCRIPTION</b>  | <b>TYPE</b> | <b>MIN</b> | <b>MAX</b> | <b>DEFAULT</b> |
|---------------|---|-------------|------------|------------|----------------|
| 201           | MACRO OPTION  | SEE BELLOW  |            |            |                |
|               | MACRO BAR CODE DATA FORMAT  |             |            |            |                |
|               | 2 DIGIT MACRO # ( 00 –10 )  |             |            |            |                |
|               | 00- WILL AUTOMATICALLY SELECT THE FIRST AVAILABLE MACRO#  |             |            |            |                |
|               | 2 DIGIT ACTIVE FOR TYPE (00-15)   |             |            |            |                |
|               | 00- NONE  |             |            |            |                |
|               | 01- ALL BAR CODE TYPES  |             |            |            |                |
|               | 02- ALL BAR CODE TYPES ALWAYS   |             |            |            |                |
|               | 03-CODE 39  |             |            |            |                |
|               | 04-UPC-A  |             |            |            |                |
|               | 05-UPC-E  |             |            |            |                |
|               | 06-EAN-13   |             |            |            |                |
|               | 07-EAN-8  |             |            |            |                |
|               | 08-ISBN   |             |            |            |                |
|               | 09-CODE 128   |             |            |            |                |
|               | 10- I2 OF 5   |             |            |            |                |
|               | 11-CODABAR  |             |            |            |                |
|               | 12-CODE-93  |             |            |            |                |
|               | 13-MSI  |             |            |            |                |
|               | 14-CODE 11  |             |            |            |                |
|               | 15- INDUSTRIAL 2 OF 5   |             |            |            |                |
|               | 2 DIGIT FIND TEXT SIZE – HOW MANY CHARS LONG<br>MACRO FIND TEXT – UP TO 15 CHARACTERS LONG<br>MACRO REPLACE TEXT – UP TO 15 CHARACTERS LONG |             |            |            |                |

; F5- STRING SETUP BAR CODE

**OPTION**

| <b>NUMBER</b> | <b>DESCRIPTION</b>                             | <b>TYPE</b>   | <b>MIN</b> | <b>MAX</b> | <b>DEFAULT</b> |
|---------------|--|---|------------|------------|----------------|
| 202           | STRING OPTION                                  | SEE BELOW   |            |            | \$ 0D(CR)      |
|               | STRING BAR CODE DATA FORMAT                    |   |            |            |                |
|               | 2 DIGIT STRING# (00-10)                        |   |            |            |                |
|               |  | 00- WILL AUTOMATICALLY SELECT THE FIRST AVAILABLE STRING# |            |            |                |
|               | 1 DIGIT STRING TYPE (0-3)                      |   |            |            |                |
|               |  | 0- OFF  |            |            |                |
|               |  | 1- TERMINATION  |            |            |                |
|               |  | 2- PREAMBLE   |            |            |                |
|               |  | 3- POSTAMBLE  |            |            |                |
|               | 2 DIGIT ACTIVE FOR TYPE (00-14)                |   |            |            |                |
|               |  | 00- ALL BAR CODE TYPES                                    |            |            |                |
|               |  | 01- ALL BAR CODE TYPES ALWAYS                             |            |            |                |
|               |  | 02-CODE 39  |            |            |                |
|               |  | 03-UPC-A  |            |            |                |
|               |  | 04-UPC-E  |            |            |                |
|               |  | 05-EAN-13   |            |            |                |
|               |  | 06-EAN-8  |            |            |                |
|               |  | 07-ISBN   |            |            |                |
|               |  | 08-CODE 128   |            |            |                |
|               |  | 09-I2OF5  |            |            |                |
|               |  | 10-CODABAR  |            |            |                |
|               |  | 11-CODE 93  |            |            |                |
|               |  | 12-MSI  |            |            |                |
|               |  | 13-CODE 11  |            |            |                |
|               |  | 14- INDUSTRIAL 2 OF 5                                     |            |            |                |
|               | 1 DIGIT SCAN DIRECTION (0-2)                   |   |            |            |                |
|               |  | 0- ANY DIRECTION SCAN                                     |            |            |                |
|               |  | 1- FORWARD SCAN   |            |            |                |
|               |  | 2- REVERSE SCAN   |            |            |                |
|               | 30 CHARACTER STRING TEXT – UP TO 30 CHARACTERS |   |            |            |                |

# Appendices

# Appendix – A Special characters

## Special characters Table

The Special Characters Table is a list of all of the characters that can be entered with the S special character designator. The S special character can be used in any of the string inputs in the decoder. Locate the key that you want to embed and enter the value in the Hex column of the table.

| Hex  | Dec | Description      | Hex  | Dec | Description         | Hex  | Dec | Description        |
|------|-----|------------------|------|-----|---------------------|------|-----|--------------------|
| \$00 | 0   | NUL (CTRL @)     | \$81 | 129 | F2                  | \$A3 | 163 | 5 Keypad           |
| \$01 | 1   | SOH (CTRL A)     | \$82 | 130 | F3                  | \$A4 | 164 | 6 Keypad           |
| \$02 | 2   | STX (CTRL B)     | \$83 | 131 | F4                  | \$A5 | 165 | 7 Keypad           |
| \$03 | 3   | ETX (CTRL C)     | \$84 | 132 | F5                  | \$A6 | 166 | 8 Keypad           |
| \$04 | 4   | EOT (CTRL D)     | \$85 | 133 | F6                  | \$A7 | 167 | 9 Keypad           |
| \$05 | 5   | ENQ (CTRL E)     | \$86 | 134 | F7                  | \$A8 | 168 | Insert Keypad      |
| \$06 | 6   | ACK (CTRL F)     | \$87 | 135 | F8                  | \$A9 | 169 | Delete Keypad      |
| \$07 | 7   | BEL (CTRL G)     | \$88 | 136 | F9                  | \$AA | 170 | Home Keypad        |
| \$08 | 8   | BS (Backspace)   | \$89 | 137 | F10                 | \$AB | 171 | End Keypad         |
| \$09 | 9   | HT (Tab)         | \$8A | 138 | F11                 | \$AC | 172 | Page Up Keypad     |
| \$0A | 10  | LF (CTRL J)      | \$8B | 139 | F12                 | \$AD | 173 | Page Down Keypad   |
| \$0B | 11  | VT (CTRL K)      | \$8C | 140 | Left Shift Make     | \$AE | 174 | Up Arrow Keypad    |
| \$0C | 12  | FF (CTRL L)      | \$8D | 141 | Left Shift Break    | \$AF | 175 | Down Arrow Keypad  |
| \$0D | 13  | CR (Enter)       | \$8E | 142 | Right Shift Make    | \$B0 | 176 | Left Arrow Keypad  |
| \$0E | 14  | SO (CTRL N)      | \$8F | 143 | Right Shift Break   | \$B1 | 177 | Right Arrow Keypad |
| \$0F | 15  | SI (CTRL O)      | \$90 | 144 | Left ALT Make       | \$B2 | 178 | Center Keypad      |
| \$10 | 16  | DLE (CTRL P)     | \$91 | 145 | Left ALT Break      | \$B3 | 179 | Insert             |
| \$11 | 17  | DC1 (CTRL Q)     | \$92 | 146 | Right ALT Make      | \$B4 | 180 | Delete             |
| \$12 | 18  | DC2 (CTRL R)     | \$93 | 147 | Right ALT Break     | \$B5 | 181 | Home               |
| \$13 | 19  | DC3 (CTRL S)     | \$94 | 148 | Left Control Make   | \$B6 | 182 | End                |
| \$14 | 20  | DC4 (CTRL T)     | \$95 | 149 | Left Control Break  | \$B7 | 183 | Page Up            |
| \$15 | 21  | NAK (CTRL U)     | \$96 | 150 | Right Control Make  | \$B8 | 184 | Page Down          |
| \$16 | 22  | SYN (CTRL V)     | \$97 | 151 | Right Control Break | \$B9 | 185 | Up Arrow           |
| \$17 | 23  | ETB (CTRL W)     | \$98 | 152 | / Keypad            | \$BA | 186 | Down Arrow         |
| \$18 | 24  | CAN (CTRL X)     | \$99 | 153 | * Keypad            | \$BB | 187 | Left Arrow         |
| \$19 | 25  | EM (CTRL Y)      | \$9A | 154 | - Keypad            | \$BC | 188 | Right Arrow        |
| \$1A | 26  | SUB (CTRL Z)     | \$9B | 155 | + Keypad            | \$BD | 189 |                    |
| \$1B | 27  | ESC (ESC)        | \$9C | 156 | . Keypad            | \$BE | 190 | Num Lock           |
| \$1C | 28  | FS (CTRL \)      | \$9D | 157 | Enter Keypad        | \$BF | 191 | Caps Lock          |
| \$1D | 29  | GS (CTRL ])      | \$9E | 158 | 0 Keypad            | \$C0 | 192 | Scroll Lock        |
| \$1E | 30  | RS (CTRL ^)      | \$9F | 159 | 1 Keypad            | \$C1 | 193 | Print Screen       |
| \$1F | 31  | US (CTRL _)      | \$A0 | 160 | 2 Keypad            | \$C2 | 194 | Pause              |
| \$7F | 127 | DEL (CTRL BkSpc) | \$A1 | 161 | 3 Keypad            |      |     |                    |
| \$90 | 128 | F1               | \$A2 | 162 | 4 Keypad            |      |     |                    |

# Appendix – B ALT Keypad Table

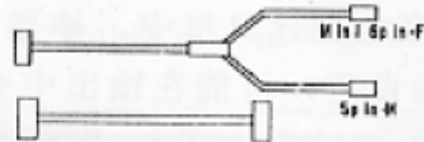
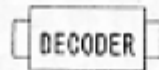
## ALT Keypad Table

The # designator is used to output any character value between 1 and 255. The following table shows the keypad sequence sent to the computer for the # sequence entered. The actual character displayed will depend upon on the software running and the country setting of your computer. In some cases, no actual character is displayed.

| Hex | Keypad  | Hex | Keypad  | Hex | Keypad  | Hex | Keypad  | Hex | Keypad  | Hex | Keypad  | Hex | Keypad  |
|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|
| #01 | ALT 001 | #26 | ALT 038 | #4B | ALT 075 | #70 | ALT 112 | #95 | ALT 149 | #BA | ALT 185 | #DF | ALT 223 |
| #02 | ALT 002 | #27 | ALT 039 | #4C | ALT 076 | #71 | ALT 113 | #96 | ALT 150 | #BB | ALT 187 | #E0 | ALT 224 |
| #03 | ALT 003 | #28 | ALT 040 | #4D | ALT 077 | #72 | ALT 114 | #97 | ALT 151 | #BC | ALT 188 | #E1 | ALT 225 |
| #04 | ALT 004 | #29 | ALT 041 | #4E | ALT 078 | #73 | ALT 115 | #98 | ALT 152 | #BD | ALT 189 | #E2 | ALT 226 |
| #05 | ALT 005 | #2A | ALT 042 | #4F | ALT 079 | #74 | ALT 116 | #99 | ALT 153 | #BE | ALT 190 | #E3 | ALT 227 |
| #06 | ALT 006 | #2B | ALT 043 | #50 | ALT 080 | #75 | ALT 117 | #9A | ALT 154 | #BF | ALT 191 | #E4 | ALT 228 |
| #07 | ALT 007 | #2C | ALT 044 | #51 | ALT 081 | #76 | ALT 118 | #9B | ALT 155 | #C0 | ALT 192 | #E5 | ALT 229 |
| #08 | ALT 008 | #2D | ALT 045 | #52 | ALT 082 | #77 | ALT 119 | #9C | ALT 156 | #C1 | ALT 193 | #E6 | ALT 230 |
| #09 | ALT 009 | #2E | ALT 046 | #53 | ALT 083 | #78 | ALT 120 | #9D | ALT 157 | #C2 | ALT 194 | #E7 | ALT 231 |
| #0A | ALT 010 | #2F | ALT 047 | #54 | ALT 084 | #79 | ALT 121 | #9E | ALT 158 | #C3 | ALT 195 | #E8 | ALT 232 |
| #0B | ALT 011 | #30 | ALT 048 | #55 | ALT 085 | #7A | ALT 122 | #9F | ALT 159 | #C4 | ALT 196 | #E9 | ALT 233 |
| #0C | ALT 012 | #31 | ALT 049 | #56 | ALT 086 | #7B | ALT 123 | #A0 | ALT 160 | #C5 | ALT 197 | #EA | ALT 234 |
| #0D | ALT 013 | #32 | ALT 050 | #57 | ALT 087 | #7C | ALT 124 | #A1 | ALT 161 | #C6 | ALT 198 | #EB | ALT 235 |
| #0E | ALT 014 | #33 | ALT 051 | #58 | ALT 088 | #7D | ALT 125 | #A2 | ALT 162 | #C7 | ALT 199 | #EC | ALT 236 |
| #0F | ALT 015 | #34 | ALT 052 | #59 | ALT 089 | #7E | ALT 126 | #A3 | ALT 163 | #C8 | ALT 200 | #ED | ALT 237 |
| #10 | ALT 016 | #35 | ALT 053 | #5A | ALT 090 | #7F | ALT 127 | #A4 | ALT 164 | #C9 | ALT 201 | #EE | ALT 238 |
| #11 | ALT 017 | #36 | ALT 054 | #5B | ALT 091 | #80 | ALT 128 | #A5 | ALT 165 | #CA | ALT 202 | #EF | ALT 239 |
| #12 | ALT 018 | #37 | ALT 055 | #5C | ALT 092 | #81 | ALT 129 | #A6 | ALT 166 | #CB | ALT 203 | #F0 | ALT 240 |
| #13 | ALT 019 | #38 | ALT 056 | #5D | ALT 093 | #82 | ALT 130 | #A7 | ALT 167 | #CC | ALT 204 | #F1 | ALT 241 |
| #14 | ALT 020 | #39 | ALT 057 | #5E | ALT 094 | #83 | ALT 131 | #A8 | ALT 168 | #CD | ALT 205 | #F2 | ALT 242 |
| #15 | ALT 021 | #3A | ALT 058 | #5F | ALT 095 | #84 | ALT 132 | #A9 | ALT 169 | #CE | ALT 206 | #F3 | ALT 243 |
| #16 | ALT 022 | #3B | ALT 059 | #60 | ALT 096 | #85 | ALT 133 | #AA | ALT 170 | #CF | ALT 207 | #F4 | ALT 244 |
| #17 | ALT 023 | #3C | ALT 060 | #61 | ALT 097 | #86 | ALT 134 | #AB | ALT 171 | #D0 | ALT 208 | #F5 | ALT 245 |
| #18 | ALT 024 | #3D | ALT 061 | #62 | ALT 098 | #87 | ALT 135 | #AC | ALT 172 | #D1 | ALT 209 | #F6 | ALT 246 |
| #19 | ALT 025 | #3E | ALT 062 | #63 | ALT 099 | #88 | ALT 136 | #AD | ALT 173 | #D2 | ALT 210 | #F7 | ALT 247 |
| #1A | ALT 026 | #3F | ALT 063 | #64 | ALT 100 | #89 | ALT 137 | #AE | ALT 174 | #D3 | ALT 211 | #F8 | ALT 248 |
| #1B | ALT 027 | #40 | ALT 064 | #65 | ALT 101 | #8A | ALT 138 | #AF | ALT 175 | #D4 | ALT 212 | #F9 | ALT 249 |
| #1C | ALT 028 | #41 | ALT 065 | #66 | ALT 102 | #8B | ALT 139 | #B0 | ALT 176 | #D5 | ALT 213 | #FA | ALT 250 |
| #1D | ALT 029 | #42 | ALT 066 | #67 | ALT 103 | #8C | ALT 140 | #B1 | ALT 177 | #D6 | ALT 214 | #FB | ALT 251 |
| #1E | ALT 030 | #43 | ALT 067 | #68 | ALT 104 | #8D | ALT 141 | #B2 | ALT 178 | #D7 | ALT 215 | #FC | ALT 252 |
| #1F | ALT 031 | #44 | ALT 068 | #69 | ALT 105 | #8E | ALT 142 | #B3 | ALT 179 | #D8 | ALT 216 | #FD | ALT 253 |
| #20 | ALT 032 | #45 | ALT 069 | #6A | ALT 106 | #8F | ALT 143 | #B4 | ALT 180 | #D9 | ALT 217 | #FE | ALT 254 |
| #21 | ALT 033 | #46 | ALT 070 | #6B | ALT 107 | #90 | ALT 144 | #B5 | ALT 181 | #DA | ALT 218 | #FF | ALT 255 |
| #22 | ALT 034 | #47 | ALT 071 | #6C | ALT 108 | #91 | ALT 145 | #B6 | ALT 182 | #DB | ALT 219 |     |         |
| #23 | ALT 035 | #48 | ALT 072 | #6D | ALT 109 | #92 | ALT 146 | #B7 | ALT 183 | #DC | ALT 220 |     |         |
| #24 | ALT 036 | #49 | ALT 073 | #6E | ALT 110 | #93 | ALT 147 | #B8 | ALT 184 | #DD | ALT 221 |     |         |
| #25 | ALT 037 | #4A | ALT 074 | #6F | ALT 111 | #94 | ALT 148 | #B9 | ALT 185 | #DE | ALT 222 |     |         |

★★Note: The char #00 cannot be output as an ALT keypad character.

# Appendix- C Decoder Pinouts and Specifications



1. Start of Scan
2. Bar Code Data In (Wand Data In)
3. Good Read Out
4. No Connection
5. Laser Trigger In
6. Power Enable
7. Ground (Wand Ground)
8. Shield Ground
9. +5 VDC

RS232 Same as Built-In Type

KB Connector-6P mini-Din (Female)

1. Keyboard Data
2. Reserved
3. Ground
4. +5VDC
5. Keyboard Clock
6. Reserved

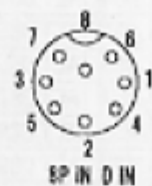
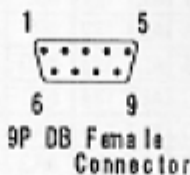
PC Connector - 5P Din (Male)

1. Keyboard Clock(Wand Data)
2. Keyboard Data
3. Reserved
4. Ground
5. +5 VDC

KB Connector  
End View



PC Connector  
End View



TTL Type

| Color  | Function      | 9 Pin DSUB/AMP (F) | 6 Pin Din (M) | 6 Pin Din (M) | 6 Pin mini Din (M) |
|--------|---------------|--------------------|---------------|---------------|--------------------|
| Brown  | Start of Scan | 1                  | -             | 6             | 6                  |
| Yellow | Signal Data   | 2                  | 2             | 2             | 4                  |
| Green  | LED Indicator | 3                  | -             | -             | -                  |
| Red    | Trigger       | 5                  | 5             | 5             | 1                  |
| Blue   | Power Enable  | 6                  | 4             | 4             | 2                  |
| Black  | GND           | 7                  | 3             | 3             | 5                  |
| White  | GND Shield    | 8                  | 3             | 3             | 5                  |
| Orange | Vcc +5V       | 9                  | 1             | 1             | 3                  |

RS232 Type

| Color  | Function | 9 Pin DSUB/AMP (F) | 25 Pin DSUB (F) |
|--------|----------|--------------------|-----------------|
| Brown  | GND      | 5                  | 7               |
| Yellow | CIS      | 7                  | 4               |
| Green  | RTS      | 8                  | 5               |
| Orange | RX       | 3                  | 2               |
| Blue   | TX       | 2                  | 3               |
| White  | Vcc +5V  | 9                  | 25, 16          |

OCIA Type

| Color  | Function     | 8 Pin Din (M) | 9 Pin DSUB (F) | 10 Pin (Casio) |
|--------|--------------|---------------|----------------|----------------|
| Black  | Clock Return | 4             | 1              | 3              |
| Green  | Clock        | 3             | 2              | 9              |
| Yellow | Data Return  | 1             | 3              | 5              |
| Red    | Data         | 2             | 4              | 7              |
| White  | Vcc +5V      | 5             | 7              | 10             |
| Brown  | GND          | 7             | 8              | 1              |

WAND Emulation Type

| Color | Function    | 9 Pin DSUB/AMP (F) | 5 Pin Din (M) | 6 Pin Din (M) |
|-------|-------------|--------------------|---------------|---------------|
| Blue  | Signal Data | 2                  | 2             | 3             |
| Brown | GND         | 7, 8               | 3             | 3             |
| White | Vcc +5V     | 9                  | 1             | 1             |

RS232/Keyboard Type

| Color  | Function | 9 Pin DSUB/AMP (F) | 25 Pin DSUB (F) |
|--------|----------|--------------------|-----------------|
| Brown  | GND      | 5                  | 7               |
| Blue   | TX       | 3                  | 3               |
| White  | Vcc +5V  | 9                  | 25, 16          |
| Orange | RX       | 2                  | 2               |



## Appendix – D Troubleshooting and Error Beeps

**Problem:** My computer beeps and some of my bar code data is missing.

**Cause:** The decoder's transmit speed is too fast.

**Solution:** Slow down the decoder's transmit speed.

**Problem:** Some of the characters of my bar code are garbled or incorrect.

**Cause:** The decoder's **Keyboard Country** setting does not match the computer's keyboard setup.

**Solution:** Set the decoder's **Keyboard Country** to the same setting as the keyboard on your computer.

**Problem:** My bar code cannot be read by the decoder.

**Cause 1:** The decoder for the bar code you are attempting to read is turned off.

**Solution:** Enter Setup Mode using the CTRL+F2+SHIFT+BACKSPACE key sequence , press F2, select the DECODERS ON/OFF group, cursor down each decoder and set it to on. Press CTRL+ESC to exit configuration and save changes and attempt to read the barcode . You may also use the Bar Code Type ID to determine the type of the barcode that was just read.

**Cause 2:** Your bar code is possible encoded incorrectly.

**Solution:** Call technical support for assistance.

**Cause 3 :** The decoder is damaged or is no longer functioning.

**Solution :** Call technical support for assistance.

**Problem:** My computer gets a keyboard error while booting up.

**Cause:** The decoder is damaged or is no longer functioning.

**Solution:** Disconnect the decoder from your computer and use your keyboard only. Reboot your computer. If your computer still gets a keyboard error, then the problem may not be the decoder . Call technical support for assistance.

**Problem:** My Caps Lock LED on my keyboard flickers when I read a bar code.

**Cause:** The **Keyboard Country** that you are using requires shifting in and out of the Shift Lock mode to send the data properly.

**Solution:** This is normal operation. You can reduce the flickering and speed the data transmit by sending numerics as keypad numerics, or setting the **Keyboard Country** to UNIVERSAL mode.

**Problem:** I can't activate the Setup Mode on the decoder.

**Cause 1:** The decoder is currently configured to lockout the Setup Mode after a bar code is read.

**Solution:** Turn the power off and then back on to your computer, and reenter the Setup Mode before reading any bar codes. .

**Cause 2:** The keyboard that you are using does not work properly when you hold down the **Left- Control** and **Caps Lock** keys

**Solution:** Use the alternate programming key sequence: **Left – Control, F2, Right – Shift,** and **Backspace.**

**Problem:** The decoder beeps , but no data is displayed on my computer.

**Cause:** The decoder is set to strip the same number of characters as there are in your bar code.

**Solution:** Reconfigure the decoder to not strip characters from the bar code.  
OR

**Cause:** The decoder is configured to send the numeric data as KEYPAD NUMERICS, or the **Keyboard Country** setting is set to **UNIVERSAL**

**Solution:** Reconfigure the decoder to **Send Numerics As** MAIN KEYBOARD KEYS and set the **Keyboard Country** setting to the country setting of your computer.

**Problem:** My programmable keyboard fails to program when the decoder is installed.

**Cause:** The decoder responds to valid keyboard commands from the computer. Most programmable Keyboard software programs send characters to the keyboard that are not valid commands,

**Solution:** Remove the decoder from the computer before programming your keyboard.

**Problem:** When I connected RS232 interface reader to PC, I could not get power up signal.

**Cause:** There is no power from PC serial port

**Solution:** Use external power supply or take the power from PC.

**Problem:** When I connected RS232 interface reader to PC or terminal, I got power up signal but no data transmitted.

**Cause:** This may be caused by wrong pin out or wrong communication protocol.

**Solution:** Check the pin out and communication protocol to match the PC or terminal you are using.

**Problem:** I can not find the bar code label I need.

**Cause:** There are more than hundreds of bar codes need to be printed. All the bar code shows on this manual only the most common ones.

**Solution:** Follow the Bar Code Formats and print what you need.